

Antihypercholesterolemia property and fatty acid composition of MARDI-produced virgin coconut oils

Abstract

Virgin coconut oil (VCO), or in Malays known as 'minyak kelapa dara', has gain a lot of attention recently due to various medicinal values. The aim of the present study was to evaluate the effect of feeding two types of VCOs, VCOA (produced via a standard drying method) or VCOB (prepared via fermentation process), that were produced by Malaysia Agriculture Research and Development Institute (MARDI) in lowering the plasma lipid parameter in rabbits. Nine groups of New Zealand White male rabbits ($n = 6/\text{group}$) were used in this study. Group 1 and 2 animals were treated with 0.9% normal saline, but fed either with a normal or cholesterol-added diet (negative control), respectively. Group 3 - 5 and 6 - 8 were given orally with the different volume (0.5, 1.0 and 2.5 ml/kg/day) of VCOA or VCOB followed by the cholesterol-added diet. Group 9 were treated with 5 mg/kg Atorvastatin and fed a cholesterol-added diet. All groups were treated for 8 weeks and blood samples were taken from the marginal ear vein prior to treatment (day 0), weeks 4 and 8 for the analysis of plasma. The rabbits fed with different volume of VCOs showed significant ($P < 0.05$) reduction in plasma cholesterol and LDL cholesterol levels compared to the control group in weeks 4 and 8. The triglycerides level increased significantly ($P < 0.05$) on week 4 before reduced on week 8, to a level that is still significant when compared to week 0. The HDL level also increased significantly ($P < 0.05$) on weeks 4 and 8 after treatment. Fatty acid analysis revealed the presence of all important fatty acids. Both VCOs showed insignificant effect on all parameters measured when compared together. In conclusion, the MARDI-produced VCOs appeared to possess great potentials as antihypercholesterolemic agent that required further in-depth study.

Keyword: Virgin coconut oil; Antihypercholesterolemia; Atorvastatin